

LX XII

65-46-63-4949

1-2-1

JOINT MESSAGEFORM

LX XII

SECURITY CLASSIFICATION

1-2-1

SPACE BELOW RESERVED FOR CORRECTION

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DOWNGRADED AT 5 YEAR INTERVALS; DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

ACTION	PRECEDENCE	TYPE MSG (Check)	ACCOMPLISHING SYMBOL	ORIGIN OR REFERENCE	CLASSIFICATION OF REFERENCE
INFO		BOOK MULTI SINGLE			

FROM: 65TH AEROSPACE TEST WING
VANDENBERG AFB, CALIFORNIA, VVZD
TO: SPACE SYSTEMS DIVISION, LOSA, CALIFORNIA
SUBJECT: EIGHT-HOUR FLASH REPORT, VEHICLE
SLV-2/65-01A/490/1171

SPECIAL INSTRUCTIONS

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
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LAUNCH SUMMARY

VEHICLE SLV-2/65-01A/490/1171 WAS LAUNCHED ON THE FIRST ATTEMPT FROM VAFB COMPLEX 75-1, PAD 2, AT 1227:34.51 PST, ON 9 NOVEMBER 1963. THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE SS-01A SATELLITE WITH PAYLOAD IN A NEAR-POLAR ORBIT, WAS NOT ACCOMPLISHED. THE COUNTDOWN PROCEEDED SMOOTHLY WITH TWO HOLDS IMPOSED, FOR A TOTAL OF EIGHT MINUTES, FOR TRANS. *BASED ON DATA REVIEWED AT THIS TIME* THE FLIGHT TERMINATED AT APPROXIMATELY 134 SEC. DUE TO COMPLETE LOSS OF ATTITUDE CONTROL BY THE BOOSTER. THIS LOSS WAS PRECIPITATED BY A GRADUAL DETERIORATION OF THE BOOSTER FLIGHT CONTROL SYSTEM PERFORMANCE AS A RESULT OF AN APPARENT ELECTRICAL MALFUNCTION.

DATE	TIME
9	
MONTH	YEAR
11	63

TYPED NAME AND TITLE (Signature, if required)	
WALTER W. MAJ. GEN.	
SECURITY	NR. OF PAGES

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ASSOCIATED WITH THE CONTROL SYSTEM DC POWER SUPPLY. IT APPEARS THAT THE STATUS OF THE SE-01A WAS NORMAL THROUGH FLIGHT TERMINATION; HOWEVER, SEPARATION AND SUBSEQUENT SE-01A EVENTS DID NOT OCCUR DUE TO LACK OF THE D-TIMER START AND SEPARATION ARISING SIGNALS FROM THE SLV-2.

II. SIGNIFICANT EVENTS

PERFORMANCE VALUES OF SIGNIFICANT EVENTS REFERENCED FROM LISTING AT INITIAL REPORT ARE:

STEERING INITIATED	91.56 SEC
1ST EVIDENCE OF DEVIATION IN ACTUATOR POT VOLTAGE	95 TO 100 SEC
SLV-2 GYRO CURRENT REACHES SIGNIFICANT LEVEL OF 100 MA	111 SEC
PITCH AND YAW RATE GYROS REACH TELEMETRY RANGE	129.5 SEC
ACTUATOR POT NEGATIVE REACHES TELEMETRY RANGE (-10 V)	
ACTUATOR POT POSITIVE READS +19.5 V AT THIS TIME	132 SEC
COMPLETE LOSS OF CONTROL AS EVIDENCED BY SHARP YAW RIGHT AND PITCH UP	134 SEC
MECO AND VECO OCCUR SIMULTANEOUSLY AS A RESULT OF VIOLENT MANEUVER	137.5 SEC
LOSS OF SLV-2 TELEMETRY SIGNAL	

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LOSS OF 2-SEA TELEMETRY SIGNAL AT
VTS (LINK 1)

378 SEC

HL - RLV-3 VEHICLE PERFORMANCE

RLV-3 PERFORMANCE WAS UNSATISFACTORY IN THAT A LOSS OF ATTITUDE CONTROL RESULTED IN FLIGHT TERMINATION APPROXIMATELY 18 SEC PRIOR TO ANTICIPATED RELOC. DETERIORATION OF CONTROL BEGAN GRADUALLY AT ABOUT 11 SEC. AS EVIDENCED BY LACK OF NORMAL RESPONSE OF THE VEHICLE TO GROUND GUIDANCE STEERING COMMANDS. BY 12 SEC. PITCH AND YAW RATE GYROs HAD REACHED TELEMETRY RANGES (PLUS OR MINUS 2 DEG PER SEC) AND AT 134 SEC THE VEHICLE BEGAN A SHARP YAW RIGHT AND PITCH UP MANEUVER WHICH RESULTED IN THE SIMULTANEOUS CUTOFF OF THE MAIN ENGINE AND BOTH VERNIERS AT 137.4 SEC. THE MODE OF ENGINE CUTOFF IS ASSUMED TO HAVE RESULTED FROM THE DISRUPTION OF ELECTRICAL POWER, CAUSED BY THE VIOLENT MANEUVER AND CONFIRMED BY MISSILE BATTERY VOLTAGE DROP TO ZERO AT THE TIME.

THE LOSS OF ATTITUDE CONTROL APPEARS TO BE ASSOCIATED WITH AN ELECTRICAL MALFUNCTION WHICH CAUSED A DEVIATION IN ACTUATOR POTENTIOMETER



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EXCITATION VOLTAGES BEGINNING AT APPROXIMATELY 100 SEC. THE SHIFT IN POT VOLTAGES BEGAN GRADUALLY, THEN INCREASED TO A SIGNIFICANT ERROR JUST PRIOR TO THE COMPLETE LOSS OF CONTROL. THE ACTUATOR POTENTIOMETER EXCITATION VOLTAGES ARE DERIVED FROM A CONTROL SYSTEM DC POWER SUPPLY WHICH RECTIFIES 400 AC TO OBTAIN THE PLUS AND MINUS 165 VDC REQUIRED FOR THE FLIGHT CONTROL DC AMPLIFIERS. THE 400 CPM INVERTER OUTPUT WAS CONFIRMED TO HAVE BEEN NORMAL UNTIL LOSS OF BATTERY BUS VOLTAGE AT THE TIME OF MECO.

NO OTHER ABNORMALITIES WERE NOTED IN THE OTHER SLV-1 SUBSYSTEMS WHICH APPEAR TO BE RELATED TO THE CONTROL PROBLEM.

SLV-2 LOSS OF ATTITUDE CONTROL DID NOT CAUSE THE VEHICLE TO VIOLATE FLIGHT SAFETY DESTRUCT CRITERIA AND NO DESTRUCT COMMANDS WERE ISSUED. TRAJECTORY DATA INDICATE VEHICLE IMPACT OCCURRED APPROXIMATELY 360 NAUTICAL MILES DOWNRANGE.

IV. COMMAND GUIDANCE

PERFORMANCE OF THE COMMAND GUIDANCE SYSTEM WAS SATISFACTORY.

SYNOPSIS OF FIRST GUIDANCE MANEUVER OF VEHICLE

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WAS AT 11 TO 12.4 SEC WHEN A LARGER QUANTITY OF PITCH-DOWN STEERING WAS ORDERED. TELEMETRY DATA REVEALS THAT A STEADY PITCH UP MANEUVER STARTED AT 110.5 SEC DURING AN ABSENCE OF GUIDANCE PITCH STEERING ORDERS. THE VEHICLE RESPONDED TO GUIDANCE STEERING ORDERS FOR 10 MORE SECONDS IN A SLUGGISH MANNER. THEREAFTER YAW AND PITCH RATE GYRO TRACES HAD LITTLE IF ANY CORRELATION WITH STEERING ORDERS. GUIDANCE SENSED THE VEHICLE DECELERATION AT MECO AND TRANSMITTED THE S1 COMMAND WHICH IS ESSENTIAL BEFORE GOING TO S2 (SEPARATION COMMAND). ALTHOUGH S2 AND STEERING ORDERS FOR THE SS-9A WERE TRANSMITTED, THEY WERE NOT EFFECTIVE BECAUSE ARMING HAD NOT BEEN EFFECTED. GUIDANCE TRACKING DATA INDICATES THAT IMPACT OCCURRED AT AN AZIMUTH OF APPROXIMATELY 172 DEG AND AT A RANGE SOMEWHAT IN EXCESS OF 350 NM.

V. SS-9A VEHICLE PERFORMANCE

REVIEW OF PERMANENT DATA INDICATES THAT THE STATUS OF THE VEHICLE SUBSYSTEMS WAS NORMAL THROUGH FLIGHT TERMINATION AND THAT THE SS-9A REMAINED INTACT SUBSEQUENT TO THE DIVERGENT MANEUVER OF THE

SLV-2. IT ALSO APPEARS THAT SEPARATION AND

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EMERGENCY ON-GLA EVENTS DID NOT OCCUR BECAUSE THE AB-
NORMAL NATURE OF MISC AND VLOS DID NOT PERMIT
KITHEN 2-TIME START ON THE ARMS OF THE SEPARATION
CIRCUITS.

VI. SPACE - GROUND COMMUNICATION

TELEMETRY DATA FROM ALL LINES WERE SAFELY ACTUALLY
RECEIVED AND RECORDED.

VII. COUNTDOWN

THE COUNTDOWN WAS INITIATED AT 1449 PST AND PRO-
CEEDED TO LIFT OFF WITH TWO HOLDS IMPOSED. HOLD
NO. 1 WAS IMPOSED AT 1454 PST (T-24 MIN) TO PREPARE FOR
STARTING THE TERMINAL COUNT AHEAD OF SCHEDULE
BECAUSE OF EXPECTED INTERFERENCE FROM TRAINS
DURING THE EARLY PORTION OF THE SCHEDULED LAUNCH
WINDOW. THE COUNTDOWN CLOCK WAS RECYCLED TO
T-11 MINUTES AND THE COUNTDOWN RESUMED AT 1455 PST.
HOLD NO. 2 WAS IMPOSED AT 1451 PST (T-1 MIN 50 SEC) TO
AWAIT EXIT OF TRAINS FROM THE HAZARD AREA. THE
COUNTDOWN WAS RECYCLED TO T-4 MIN AT 1455 PST.
THE CLOCK WAS THEN ALLOWED TO RUN TO T-3 MIN
(START OF PHASE V) BEFORE RELEASE OF THE HOLD.

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LIFTOFF OCCURRED AT 12:27:44 H. PSC.
ADDITIONAL PROBLEMS AND DELAYS ENCOUNTERED WERE:
TASKS 3, 4, 5, 6, AND 7 WERE CONDUCTED PRIOR TO TASK 2
BECAUSE OF ANTICIPATED INTERFERENCE FROM ANOTHER
OPERATION. THIS CAUSED A DELAY OF APPROXIMATELY
30 MINUTES.

IN TASK 6, THE SS-GIA T/M MEASUREMENT 16-1-43 (LOW
RANGE GUIDANCE GAS PRESSURE) WAS FOUND TO BE MARGINAL
BUT WAS WAIVED BY THE AIR FORCE.

AT APPROXIMATELY 0900 ^{177 K545} A TECHNICIAN WAS INJURED IN A
FALL FROM AN ELEVATED CAMERA PLATFORM.
DURING SS-GIA TANKING, IT WAS NECESSARY TO SEND PER-
SONNEL TO THE PAD TO ADJUST AN LMSG GAS PRESSURE
REGULATOR.

VII. AEROSPACE GROUND EQUIPMENT

THE AGE FUNCTIONED SATISFACTORILY TO SUPPORT
CHECKOUT AND LAUNCH OF THE VEHICLE. THE ONLY
PROBLEM REPORTED WAS AN ADJUSTMENT OF A GAS
PRESSURE REGULATOR DURING SS-GIA TANKING.

VIII. PAD DAMAGE

PAD DAMAGE WAS NORMAL AND THE REHABILITATION

SCHEDULE CAN BE MAINTAINED.

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